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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) TH1808 US	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on <u>June 29, 2006</u> Signature <u>Richard F. Lemuth</u> Typed or printed name <u>Richard F. Lemuth</u>		Application Number 10/606,440	Filed June 26, 2003
		First Named Inventor John Robert Lockemeyer	
		Art Unit 1755	Examiner Patricia L. Hailey

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)
- ☐ attorney or agent of record.
Registration number _____
- ☒ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 30,081

Richard F. Lemuth
Signature

Richard F. Lemuth
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Telephone number

June 29, 2006
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Patent
TH1808 (US)

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Richard F. Lemuth
Richard F. Lemuth

Date: June 29, 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of)	
JOHN ROBERT LOCKEMEYER ET AL)	
)	
Serial No. 10/606,440)	Group Art Unit: 1755
Filed June 26, 2003)	Examiner: Hailey, Patricia L.
A METHOD FOR IMPROVING THE)	June 29, 2006
SELECTIVITY OF A CATALYST AND)	
A PROCESS FOR THE EPOXIDATION)	
OF AN OLEFIN)	

MAIL STOP AF
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Sir:

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Applicants request review of the final rejection in the Office Action, dated February 3, 2006, and the Examiner's comments in the Advisory Action, dated May 8, 2006, both of which are relative to the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal and a petition for a two-month extension of time. The reasons for requesting review are set forth below.

The Examiner has rejected Claims 1-9 and 11-25 under 35 U.S.C. § 103(a) as being unpatentable over Hayden et al (U.S. Patent No. 4,007,135 (hereinafter “the ‘135 reference”)). However, the Examiner has failed to provide a *prima facie* basis for the rejection under 35 U.S.C. 103(a).

Applicants claimed method in the present application relates to a supported highly selective epoxidation catalyst comprising silver in a quantity of at most 0.17 g per m² surface area of the support and further comprising one or more selectivity enhancing dopants selected from rhenium, molybdenum and tungsten. The catalyst, or a precursor of the catalyst containing silver in cationic form, is contacted with a feed comprising oxygen at a catalyst temperature above 250 °C for a duration of at least 0.5 hours and up to 150 hours, and subsequently the catalyst temperature is decreased to a value of at most 250 °C.

As explained in the application text (page 7, line 28 – page 8, line 13), the present invention may specifically be applicable to epoxidation catalysts having a selectivity enhancing dopant (as defined) and having a relatively low silver density. Catalysts having a higher silver density are preferably not subjected to the treatment of the present invention (cf. application text, page 4, lines 3-8). It has been found that the selectivity of the claimed highly selective epoxidation catalyst can be improved by heat-treating the catalyst in the presence of oxygen at a temperature which is typically above the catalyst’s normal initial operation temperature (cf. application text, page 3, lines 19-23).

In order to establish a *prima facie* case of obviousness, there must be a reasonable expectation of success for the modification of the prior art. M.P.E.P. 2143 and 2143.02. It appears that the Examiner is applying an improper “obvious to try” rationale in support of the obviousness rejection. M.P.E.P. 2145(X)(B). “Obvious to try” has been defined in terms of what “would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful....” *Id.*

Care must be taken not “to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.” *See Id.* (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)). Bits and pieces of the invention as currently claimed can be pointed to in the

prior art, but only if one is armed with hindsight knowledge. In the Advisory Action, the Examiner asserts the '135 reference reads upon the instantly claimed invention; however, the prior art does no more than suggest experimenting with many possible combinations of parameters to come up with the invention as claimed. 'Obvious to try' is not the standard for obviousness.

The '135 reference discloses many different properties with respect to the catalyst and the support. The catalyst preferably comprises 3 to 15 % by weight silver, more preferably 6 to 12 % by weight silver. *U.S. Patent No. 4,007,135* col. 3, ll. 27-28. There are many possible promoters disclosed in the '135 reference. For example, possible promoters include: copper, gold, zinc, cadmium, mercury, niobium, tantalum, molybdenum, tungsten, vanadium, or preferably chromium, calcium, magnesium, strontium and/or, more preferably barium. *Id.* at col. 1, ll. 35-39. Additional promoters include: alkali metals, especially sodium, potassium or rubidium. *Id.* at col. 3, ll. 13-17. Also, the '135 reference discloses many different properties for the support such as surface area, apparent porosity, median pore diameter, pore size distribution, pore volume, ratio of median pore diameter to average equivalent diameter of the silver particles. *Id.* at col 1, ll. 25-35; col. 3, ll. 28-50. With respect to the surface area, the range disclosed is from 0.04 to 10 m²/g. *Id.* Further, the '135 reference discloses decomposing silver by heating to a temperature of 200-400 °C. *Id.* at col. 5, ll. 17-20. There are no generic teachings with respect to heating atmospheres or heating times.

The generic teachings of the '135 reference do not provide an indication of which parameters are critical or which direction as to the many possible choices is likely to be successful. The '135 reference does not teach or suggest any relationship between the amount of silver and the surface area of the support, i.e., silver density. Further, the '135 reference does not teach or suggest any relationship between particular values for the silver density, promoters and heating conditions to indicate which of the many possible combinations of parameters would be successful.

Moreover, the examples must also be taken into consideration when considering the reference as a whole. The '135 reference, when considered as a whole, provides no preference to use higher temperatures over lower temperatures or lower temperatures over higher temperatures and shows higher temperatures can actually lead to a decline in catalyst

selectivity. With respect to heating conditions, Examples 4 and 10 of the '135 reference show the use of lower temperatures as well as higher temperatures to reduce the silver without indicating a preference. Example 4 discloses reducing the silver salt in an atmosphere comprising hydrogen at a maximum temperature of 220 °C. *Id.* at col. 9, ll. 15-20. Example 10 discloses reducing the silver by heating in a forced draught oven for 4 hours while the temperature was raised from 100 to 300 °C at a rate of 0.8 °C/min. *Id.* at col. 12, ll. 28-32.

Further, a comparison of Example 7 to Example 27 shows that using higher temperatures with catalysts having silver densities greater than claimed in the present invention can lead to a decline in catalyst selectivity. In Example 7, as discussed above, the silver impregnated supports are heated in a forced draught oven for 4 hours while the temperature is raised from 100 to 280 °C at a rate of 0.8 °C/min. The catalysts in Example 7 contained 8 % by weight silver and were prepared using a support having a surface area of 0.17 m²/g. *Id.* at col. 9, l. 65 – col. 10, l. 2. The silver density can be calculated to be 0.47 grams of silver per m² surface area of the support which is greater than claimed in the present invention. None of the catalysts in Example 7 contained rhenium, molybdenum or tungsten as catalytic components. In Example 27, the silver impregnated supports are heated in a forced draught oven for 4 hours while the temperature is raised from 100 to 300 °C at a rate of 0.8 °C/min. *Id.* at col. 21, ll. 36-41. The disclosures in Example 7 and 27 appear to be the same except for the maximum silver reduction temperatures (280 °C vs. 300 °C) and the preparation of the silver solutions. The silver solution in Example 7 contained ethanolamine while it is not mentioned in Example 27. Catalysts J, P, R, and T of Example 7 had the same catalytic components as Catalysts 18', 29', 20', and 21', respectively, of Example 27. In comparing the selectivity data disclosed for these catalysts, one skilled in the art would find at lower conversion levels the effect of heating to higher temperatures is ambiguous at best, while at higher conversion levels, i.e., 40 % oxygen conversion, the effect of higher temperatures significantly reduces the selectivity of the catalyst. For example, the selectivity declined over 5 percent for Catalysts 18' and 29' of Example 27 which were heated to 300 °C as compared to Catalysts J and P of Example 7 which were heated to 280 °C. Thus, Examples 7 and 27 show that when catalysts which do not contain rhenium, molybdenum, or tungsten and have silver densities greater than claimed in the present invention are heated to

higher temperatures, the higher temperatures can lead to a decline in selectivity rather than an improvement.

Therefore, it would not have been obvious to one skilled in the art when considering the '135 reference as a whole to reasonably expect that the presently claimed invention would result in a distinct advantage in selectivity.

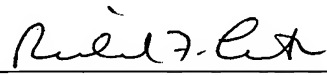
In view of these arguments, Applicants believe that a *prima facie* case of obviousness has not been established for Claims 1-9 and 11-25.

CONCLUSION

Applicants respectfully request that the rejection of claims 1-9 and 11-25 under 35 U.S.C. 103(a) be withdrawn and the claims formally allowed at this time in the light of the reasons set forth above.

Respectfully submitted,

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